

**KW11-L
line time clock
engineering drawings**



DRAWING DIRECTORY

CUSTOMER PRINT SET INDEX

SEQUENCE

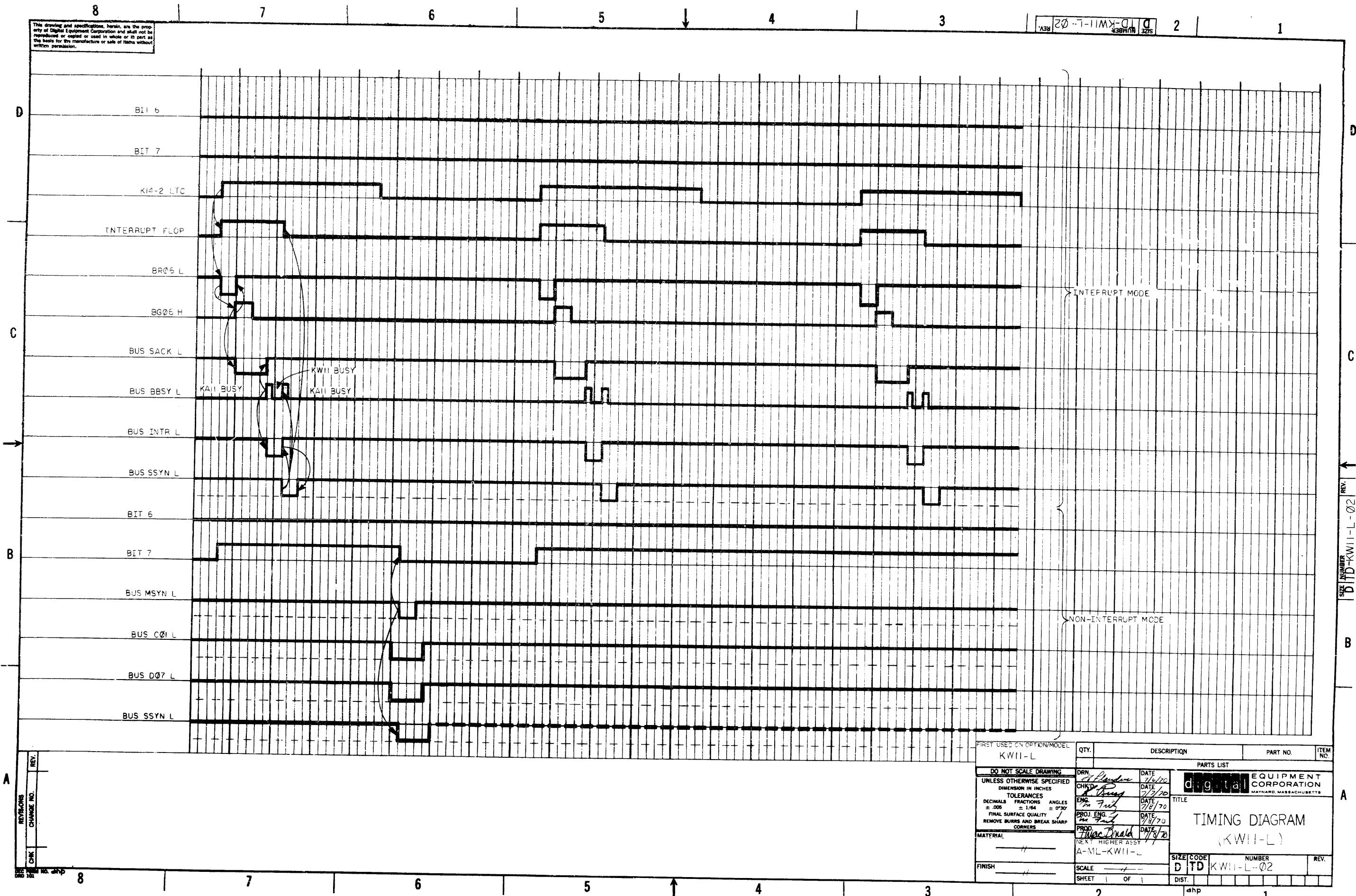
TIMING DIAGRAM	D-TD-KW11-L-02
LINE FREQUENCY CLOCK	D-BS-KW11-L-01
LINE CLOCK	D-CS-M787-01
LINE FREQUENCY CLOCK	A-PL-KW11-L-01
SOFTWARE LIST	A-SL-KW11-L-28

MFG PRINTS

TEST PROCEDURE A-SP-KW11-L-03

SEQUENCE

CUSTOMER PRINT SET		DEPOT SET	DRAWING LIST					CUSTOMER PRINT SET		DEPOT SET	DRAWING LIST				
FIND NO.	DRAWING NO.		REV	NO OF SHT	DESCRIPTION	OPTION NO.	FIND NO.	DRAWING NO.	REV		NO OF SHT	DESCRIPTION	OPTION NO.		
X	X	X	D-TD-KW11-L-02	*	1	TIMING DIAGRAM, KW11-L									
X	X	X	D-BS-KW11-L-01	A	2	LINE FREQUENCY INTERNAL CLOCK									
X	X	X	A-SP-KW11-L-03	*	3	TEST PROCEDURE									
X	X	X	D-CS-M787-0-1	#	2	LINE CLOCK									
X	X	X	A-PL-KW11-L-0	*	1	LINE FREQUENCY CLOCK									
X	X	X	A SL KW11 L 28	*	1	SOFTWARE LIST									



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PARTS REFERENCE

ITEM NO.	DRAWING REFERENCE	DESCRIPTION	PART NUMBER	QUANTITY
1	R1, R3	390Ω 1/4 W 5% CC	1300369	2
2	R2, R6 - R11	1K 1/4 W 5% CC	1300365	7
3	R4, R5	180Ω 1/4W 5% CC	1301322	2
4	R12	2.4K 1/4W 5% CC	1303177	1
5	C1 - C15, C18, C19	.01 MFD 100V 20% DISC	1001610	17
6	C16, C17	560 MFD 100V 5% D.M.	1000025	2
7	Q1, Q2	TRANSISTOR DEC 3009 B.S.	1503100	2
8	E1, E5, E8, E9, E10	I.C. DEC 380	1909485	5
9	E2	I.C. DEC 7430	1905576	1
10	E3	I.C. DEC 8815	1909713	1
11	E4	I.C. DEC 7400	1905575	1
12	E6, E7, E13	I.C. DEC 7474	1905547	3
13	E11	I.C. DEC 7404	1909886	1
14	E12, E14, E15	I.C. DEC 8801	1909705	3

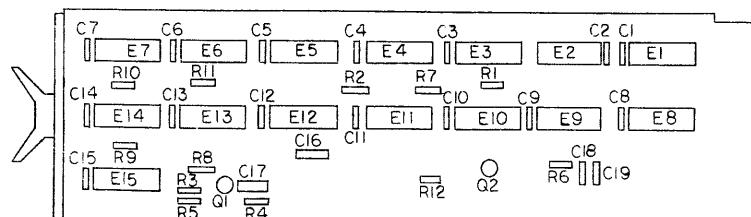
NOTES

- PIN NOTATION THROUGHOUT IS ORDERED UPON MODULE PLACEMENT IN THE KAI1 PROCESSOR. MODULE REFERENCE ALONE IS OBTAINED BY DELETING THE NUMBER (SLOT LOCATION) AFTER THE FIRST LETTER, AND CONVERTING THE FIRST LETTER ACCORDING TO THE PIN NOMENCLATURE CHART AT RIGHT.
- ALL SIGNALS THAT HAVE MODULE PINS ARE SO NOTED: MULTIPLE NOTATIONS OF THE SAME SIGNALS WITHIN A MODULE HAVE THE PIN NOTED ON EACH. AN INPUT SIGNAL IS NOTED ONLY ONCE PER SHEET UNLESS SEPARATE PINS ARE USED: MULTIPLE INPUTS ARE CONNECTED. MODULE OUTPUT SIGNALS ARE BROUGHT TO THE EXTREME RIGHT OF EACH SHEET.
- PROCESSOR SIGNAL SOURCE NOTATION (K10-2, FOR EXAMPLE) IDENTIFIES THE SIGNAL SOURCE (PRINT AND MODULE). THE FIRST NUMBER AFTER THE K INDICATES THE MODULE PRINT SET, WHILE THE SECOND INDICATES THE SHEET WITHIN THE SET. IF ON A PRINT, THE FIRST NUMBER OF THE K PREFIXES COINCIDE FOR A SIGNAL NAME AND THE PRINT (SEE TITLE BLOCK). THE SIGNAL IS GENERATED ON THE MODULE. A DIFFERENCE IN THE FIRST NUMBER OF THE K PREFIXES INDICATES A SIGNAL GENERATED OFF THE MODULE. SIGNALS WITH A "BUS" PREFIX REPRESENT A "WIRED OR" SITUATIONS AND MULTIPLE SOURCES FOR THE SIGNAL CAN EXIST.
- DETAILS ON COMPONENTS ARE NOTED IN THE PARTS REFERENCE, PLACEMENT IS NOTED IN THE COMPONENT PLACEMENT DIAGRAM.
- GND AND +5V ARE USUALLY PIN 7 AND PIN 14, RESPECTIVELY. EXCEPTIONS ARE:

IC TYPE	GND	+5V
DEC 7481	PIN 10	PIN 4
DEC 7482	PIN 11	PIN 4
DEC 8251	PIN 8	PIN 16
DEC 8271	PIN 8	PIN 16
DEC 380	PIN 1	PIN 8
DEC 384	PIN 1	PIN 8

- UNLESS OTHERWISE NOTED -RESISTANCE IS IN OHMS; CAPACITANCE IS IN MICRO MICRO FARADS, CAPACITORS WITHOUT ANY NOTED VALUES ARE .01 MFD.

COMPONENT PLACEMENT

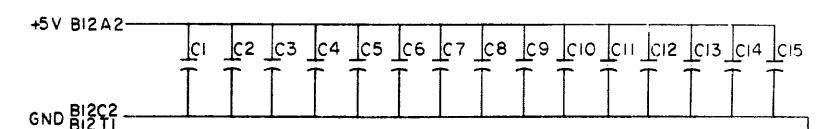


PIN NOMENCLATURE

MODULE	PROCESSOR
A	B

INSTALLATION PROCEDURE

- REMOVE JUMPER FROM B12V2 TO B12R2
- INSTALL M787 LINE FREQUENCY CLOCK MODULE IN KAI1 SLOT B12
- RUN MAINDEC DEC-11-D2DA LINE FREQUENCY CLOCK TEST

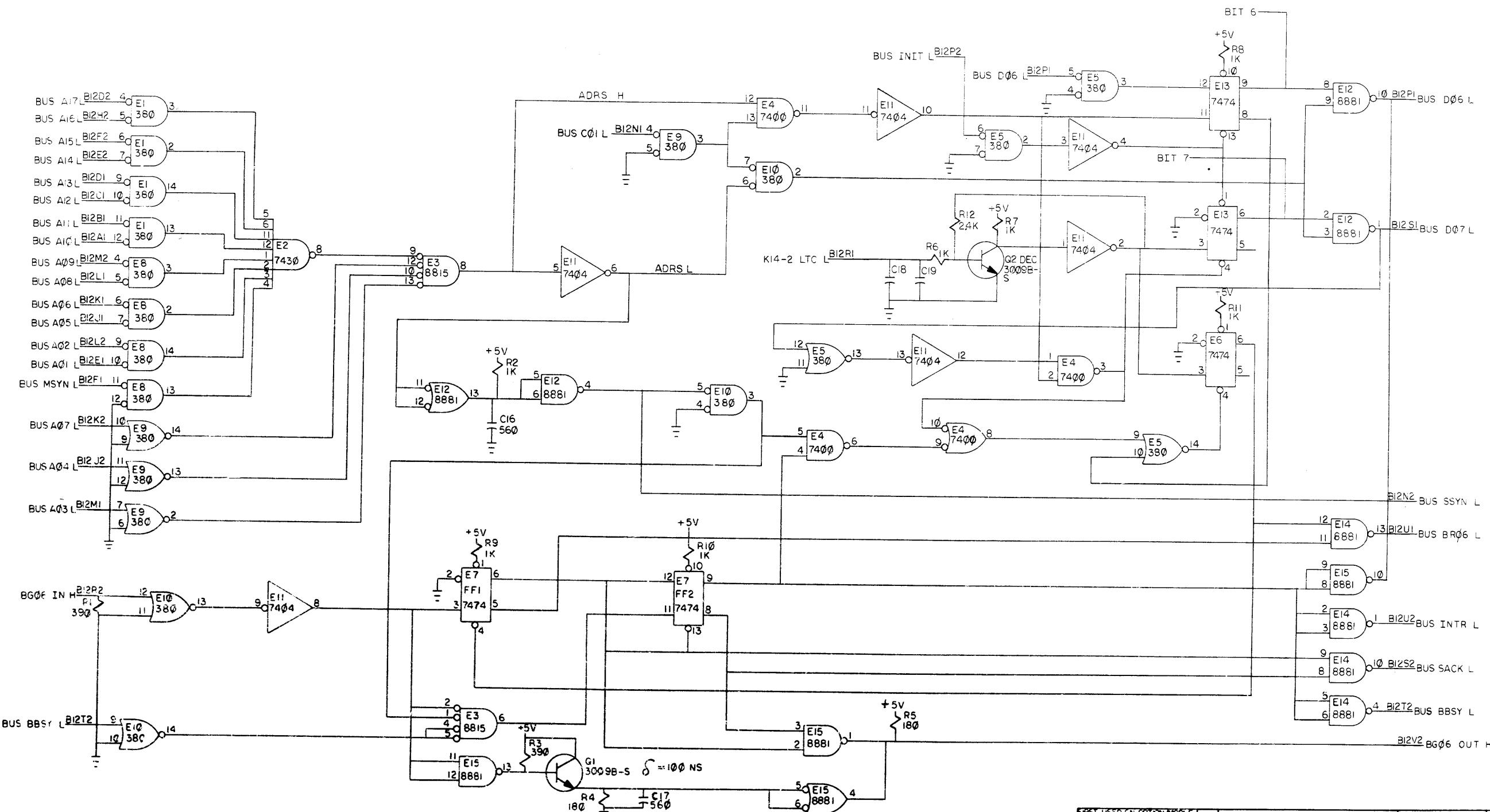


REVISIONS	CHANGE NO.	REV.
1	KW11-L-01	A
2	KW11-L-02	B
3	KW11-L-03	C
4	KW11-L-04	D
5	KW11-L-05	E
6	KW11-L-06	F
7	KW11-L-07	G

QTY.	DESCRIPTION	PART NO.	ITEM NO.
PARTS LIST			
FIRST USED ON OPTION/MODEL KW11-L		DO NOT SCALE DRAWING UNLESS OTHERWISE SPECIFIED DIMENSIONS IN INCHES TOLERANCES DEGREES FRACTIONS ANGLES ± .005 ± 1/16 ± 0.007 FINAL SURFACE QUALITY REMOVE BURRS AND BREAK SHARP CORNERS	
DRW.	DATE	DRW.	DATE
CHND	DATE	CHND	DATE
ENG.	DATE	ENG.	DATE
PROJ. ENG.	DATE	PROJ. ENG.	DATE
MATERIAL	DATE	MATERIAL	DATE
FINISH	DATE	FINISH	DATE
EQUIPMENT CORPORATION MAYNARD, MASSACHUSETTS			
LINE FREQUENCY INTERVAL CLOCK			
SIZE CODE	NUMBER	REV.	
D B S	KW11-L-01	A	
SHEET 1 OF 2 DIST.			

8
7
6
5
4
3
2
1

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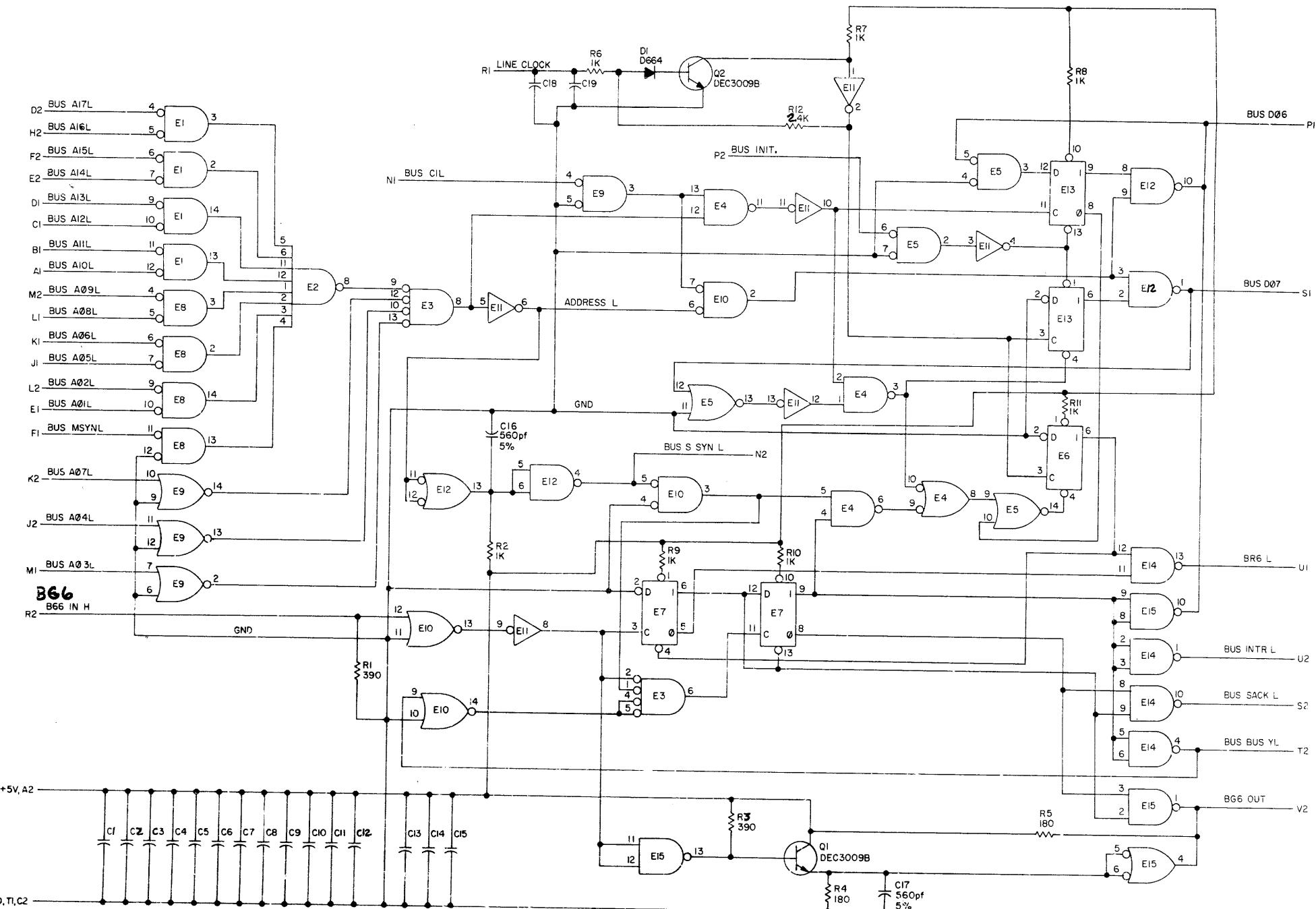
FIRST USED IN OPTION/MODEL		QTY.	DESCRIPTION	PART NO.	ITEM NO.
KW11-L					
PARTS LIST					
UNLESS OTHERWISE SPECIFIED					
UNLESS OTHERWISE SPECIFIED					
DIMENSION IN INCHES					
TOLERANCES					
DECIMALS FRACTIONS ANGLES					
± .001 ± 1/64 ± 0°30'					
FINAL SURFACE QUALITY					
REMOVE BURRS AND BREAK SHARP CORNERS					
MATERIAL					
PCB PITCHER ASSY					
A-ML-KW11-L					
FINISH					
SCALE					
SHEET 2 OF 2					
DIST.					

REV. A

LINE FREQUENCY INTERVAL CLOCK

SIZE CODE: D BS KW11-L-01 NUMBER: 2

REV. A



UNLESS OTHERWISE INDICATED:
 RESISTORS ARE 1/4W, 5%
 CAPACITORS ARE μ uf, 100V, 20%
 DEC380 = E1, E5, E8, E10, E9
 DEC7430 = E2
 DEC8815 = E3
 DEC7400 = E4
 DEC7404 = E11
 DEC8881 = E15, E12, E14
 DEC7474 = E6, E7, E13

PIN 1 = GND
 PIN R = +5V, ON E1, E8, E9, E10, E5

PIN 7 = GND ON E2, E3, E4, E11, E12, E14, E13, E7, E15, E6

REVISIONS	CHG RD	REV
	000001	A
	000002	B
	000003	C

DRAW		DATE	TRANSISTOR & DIODE CONVERSION CHART			
CHNRD	REV	DATE	DEC	EIA	DEC	EIA
ENG	1	2/23/70	DEC3009B	2N3009B	D664	IN3606
PROD		DATE				

TITLE		LINE TIME CLOCK	
		INTERRUPT M787	
SIZE	CODE	NUMBER	REV
D	CS	M787-0-1	C
PRINTED CIRCUIT REV		C/D	

DIGITAL EQUIPMENT CORPORATION
MAYNARD, MASSACHUSETTS
PARTS LIST

MADE BY M. Buczynski
DATE 6-15-72
ENG M. Buczynski
DATE 6-15-72

CHECKED *10/12/72*
DATE *10/12/72*
PROD *H2 String*
DATE *6/15/72*

SECTION

ITEM DWG NO. / PART NO.

DESCRIPTION

1 M78

LINE TIME CLOCK INTERRUPT

**DEC FORM NO. 16-103
DRA 110**

